Defense National Stockpile Center

Mercury Storage Site
Hawthorne, Nevada

Commodity-Grade Mercury Stakeholder Meeting

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Denver, Colorado

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Agenda

- Mercury Safety Initiatives – 2002-2005
- Safety Initiatives – 2007
- DNSC/Nevada Collaboration
- Process Hazard Analysis
- Transportation

Hawthorne Army Depot

130 Miles South-East of Reno
300 Miles North of Las Vegas
Elevation 4,320 Feet

Mercury Safety Initiatives

Mercury Overpacking Project

- Phase I (2002) – Overpacked 108,386 flasks
- Phase II (2005) – Overpacked 20,276 flasks
- Flasks inspected/cleaned
- Epoxy-coated steel drums
- Layered protection
  - Absorbent pads
  - Plastic liners
  - Half inch rubber gasket
  - Air & liquid tight/locking ring

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Mercury Safety Initiatives

Mercury Overpacking Project

- Inspected 128,662 flasks
- 8 flasks had external contamination
- We found no leaking flasks
- Tightened 100 stoppers

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Ongoing Safety Initiatives

- Container Inspections:
  - Phase 1 involves inspection of flasks prior to shipments to Nevada
  - Phase 2 is an in-depth analysis of storage containers to address:
    - Protocols for recurring inventory inspections
    - Flask and drum integrity for long-term storage

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Container Inspections

- Phase 1, flask and drum Inspection plan
- Under review by NDEP
  - Open each drum and inspect all flasks
  - Check for free mercury and tightness of plug
  - Re-flask as necessary at origin
  - Apply a thread sealer to stoppers
  - Install new drum gaskets
  - Reseal each drum

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Container Inspections

- Phase 2, flask integrity analysis
  - Oak Ridge National Laboratories (ORNL) to develop protocols for mercury vapor inspections for projected 40-year storage period
  - ORNL to develop expectations for flask and drum integrity

Additional Safety Initiatives

- HWAD Facility Upgrades
  - Installation of electrical service, lighting, fire detection and security systems
  - Installation of Terra-Nap flooring and ramps
  - Installation of fire suppression system
- Repositioning of Materials
- Cost $7.8 million

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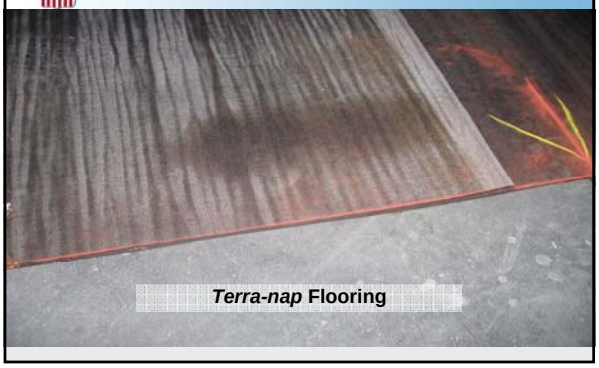
Warehouse Markings

Warning Signs

Warehouse Security

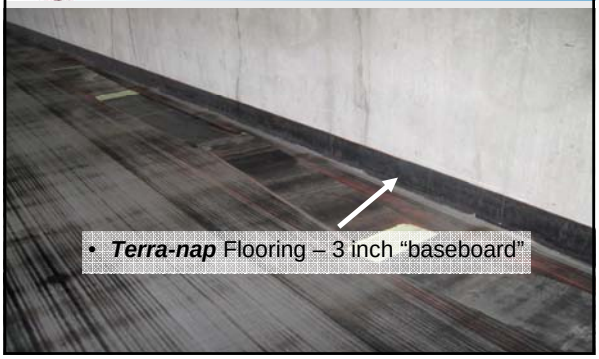
Alarm Panel

Warehouse upgrades - Flooring



Terra-nap Flooring

Warehouse upgrades - Flooring



Warehouse upgrades

Additional Safety Initiatives

- DNSC Equipment to HWAD
  - Lumex mercury vapor detection instruments
  - Jerome 431-X mercury vapor detection instruments
  - Spark-proof forklifts
  - Tow vehicle for emergency response trailer
- Training
- Total Cost $191,000

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DNSC/Nevada Collaboration

- NDEP, HWAD & DNSC Cooperative Efforts
  - *Process Hazard Analysis*
  - *NDEP Site Visits*

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Process Hazard Analysis (PHA)

- DNSC supported NDEP'S inclusion of elemental mercury under Nevada's Chemical Accident Prevention Program (CAPP)
- Preparation of a PHA supports the Nevada CAPP
  - The PHA is a systematic approach to hazard identification, management and mitigation

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Process Hazard Analysis (PHA)

- Four areas analyzed in PHA:
  - Transportation to Hawthorne
  - Mercury receipt at Hawthorne
  - Mercury transit on Hawthorne
  - Long-term, monitoring, handling and storage of mercury at Hawthorne

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Process Hazard Analysis

- Team prepared a PHA :
  - Process flow diagrams
  - "What-if" checklists
  - Human factors checklist

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Transportation to Hawthorne

- All shipments will comply with U.S. Department of Transportation requirements for shipment of hazardous materials
- Transportation to start in 2007
- Certified hazardous material haulers
  - GPS tracking
  - CB radios
  - Cellular telephones
- Transport cost $1.3 million

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